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The Physiology of Lameness.*

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In the first place, I should like to thank the division for the honour it has granted me by inviting me to read a paper; and, in the second place, I hope that the older and more experienced members will be just a little tolerant, both in their attitude and their discussion, towards one of the younger members of the division.

The title of the paper may appear at first sight somewhat ambitious; but the subject is at least one that has not received a great deal of attention in veterinary literature in this country, and is certainly one of importance to those engaged in equine practice, so that I think it perhaps warrants some attention. If I, like a fool, have rushed in where angels fear to tread, my hope is that perhaps an angel will come to my assistance and retrieve me, should I get lost, and my excuse must be that perhaps someone else may be induced to give some thought to a comparatively neglected subject.

I do not pretend that any of you will learn anything new—I am quite sure you will not; but if the paper will perhaps serve to crystallise into something concrete, half-appreciated facts which are at present floating in solution, or if it will stimulate someone else to go and do better, it will have served its purpose.

Definition.—It is, perhaps, necessary to offer some kind of a definition of lameness at the outset, but this is particularly difficult. Almost all those that are advanced in text books are found to be more or less incomplete, and a precise, comprehensive, yet concise definition is still awaited.

The popular phrase that "Lameness is the language of pain," serves to give an impression, but it is hopelessly inadequate and non-descriptive, and it disregards that class of lameness that is commonly known as "mechanical."

Percival's definition, quoted in Wooldridge's *Encyclopædia*, is as follows:—

"Lameness is the manifestation in the act of progression by one or more limbs, of pain, disease, weakness, deformity or impediment."

In Goubaux and Barrier's *Exterior of the Horse*, the definition used is that given by Bouley, in the *Nouveau Dictionnaire*, which reads as follows:—

"Lameness is the name given to all irregularity in the gait, determined by an inequality in, or a diminution of, the action of one or more of the members of locomotion." (This is a free translation.)

The matter of a definition, however, is not one of immense importance, for you are all familiar with what is meant by the word.

The physiology of lameness seems a contradictory title, but perhaps it may be allowed in the circumstances. I do not intend to enter into the pathology of the lesions that cause lameness further than may here and there be absolutely necessary, but rather to attempt to analyse what happens in some of the commoner conditions which cause lameness in the horse.

Classification.—Lameness may be either acute or chronic, and acute lamenesses are always continuous. Many chronic lamenesses are intermittent; however, the horse affected with spavin, say, or with one of the many other forms of bony lameness, may be alternately sound and lame. Further, certain chronic lamenesses may only be evident "in the cold" (*i.e.*, when the horse has been previously rested), but they get gradually less and less with exercise, till, after a period of time, the horse goes apparently sound, *e.g.*, spavin, chronic laminitis, navicular disease, etc.; while other lamenesses are only seen "in the hot" (*i.e.*, after the horse has warmed up to his work), such as thrombosis of the iliac or axillary arteries, or the lameness of azoturia.

Most forms are influenced by (1) the rate of progression being exaggerated at the faster paces; (2) by the consistence of the ground, being usually worse on hard roads than on soft turf; and (3) by the inclination of the surface, being sometimes more noticeable when ascending, and sometimes when descending a slope.

Again, lameness may affect one limb only, or it may affect a pair of limbs (either a transverse or a diagonal pair); any three limbs may be lame, or all four.

Single limb lamenesses are by far the most common; double limb lamenesses are not infrequent; but the multiple lamenesses in which three or four limbs are affected are not common. Lamenesses which "go by twos" (*i.e.*, in which either both fore or both hind limbs are attacked), are of some interest and importance, because in them the nodding of the head, and the elevation of the quarter, which are more or less typical of single leg lamenesses, either before or behind, are nullified by the symmetry of the lesions. According to one French authority, Jolly, bilaterally symmetrical lamenesses generally have as their origin

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an insufficient intrinsic resistance of the bones, of the periosteum, or of some other tissues of the limb, and he suggests that bilateral spavins, and all bilateral, phalangeal or other exostoses, as well as laminitis, whether of podophyllous or ostitic origin, navicular disease, and arthritis and periarthritis of any of the limb joints, provided these affect both members of a fore or a hind pair of limbs, are either of a rachitic or an osteomalacic origin. I think this is a somewhat new thought to us in this country, and might be worth consideration.

To continue the classification of lamenesses, it is necessary to mention those to which the term "ambulatory" has been applied, in which the lameness appears to shift from one limb to another on different days, such as the comparatively uncommon myogenic lameness associated with rheumatism; and the so-called "derived" lamenesses (or "associated" lamenesses), such as occur from causes in operation at a distant part of the limb; *e.g.*, thickening and contraction of the flexor tendons arising from "corns" or from inflammation of the angles of the third phalange, in which the horse habitually rests his foot on the toe, thereby slackening the tendons, which results in their shrinkihg and thickening.

I think that you will agree that the classification of lameness is as yet very unsatisfactory.

Causes of Lameness.—Obviously it is quite impossible to enter into all the various causes of lameness, and so I only intend to mention a few of the pathological lesions, rather than enter into a discussion of them.

All the bony diseases in which a deposition of new bone occurs are collectively known in parts of the Continent of Europe by the rather ugly word "osteitismes," and, as already mentioned, they are looked upon as being often due, either to rachitis in the young, or to osteoporosis or osteomalacia in the adult. While it is a little difficult to understand the grounds for such an assumption, and while one would hesitate to accept the theory without full proof, it does perhaps occur to one's mind that in some cases there may be, or there may have been, a mild form of one of these diseases in operation in the animal, but that it has never progressed far enough to be recognisable. Whether this is so or not, I think that in many cases there would be no harm done if young growing colts were given something of a more balanced anti-rachitic diet. I would not go so far as to suggest that every young colt should get cod-liver oil and malt extract, for example, but to my mind the very poor state in which some colts are kept as yearlings and two-year-olds demands some correction, and the adoption of the suggestion might have some influence in reducing the numbers of bony diseases that develop later in life. But I stray.

Whether we accept the theory of osteitisms or not, the word is a useful one; its definition, according to Lienaux, is as follows:—"Osteitisms is a congenital trouble of the horse which *predisposes* to bony strains, to fractures, to defects of balance, to arthritis and synovitis, to ligamentous and tendinous ruptures (by detachment of the periosteum or otherwise), etc." That is to say, the word is used to indicate a factor (probably Mendelian), which determines an inherent insufficiency in the bone, and is transmitted to the progeny of animals so affected.

As an illustration, a foal, the progeny of a sire and dam each of which is affected with, say, ringbones, is not itself born with ringbones, but it possesses in its make-up an osteitism or factor which renders it very likely to become affected with ringbones when it grows up, and it is unlikely that it will remain sound in this respect when adult, for the osteitism will then become obvious.

Osteitisms, then, if you will allow me to borrow the term, are the predisposing causes of very many lamenesses, but they usually require something of a direct nature to bring them out, so to speak. Direct factors, such as overwork, concussion, blows, strains, and severe stresses upon bone, ligament, or tendon, etc., are not hard to imagine, and their mode of operation is obvious. In this respect I should like to remind you of the way in which overwork may act. Overwork leads to weakness and slowness of the muscular movements (through concentration of sarcolactic and other acids in the circulation, which induce fatigue of muscles and nerves), to irregular or imperfect co-ordination between antagonistic muscles across a joint in the limbs, with resulting extra stress upon the joint capsule and ligaments, etc. Where the joint capsules are involved, a mild periarthritis follows (not perhaps severe in itself, but when repeatedly excited, liable to become serious), and is the forerunner of such conditions as spavin, true ringbones, etc. In the case of bones to which are attached powerful ligaments, the exaggerated tug of the ligament is communicated to the periosteum at the area of the insertion of the ligament, and a minute lifting of the periosteum occurs at the particular area concerned, so that the inner osteoblastic layer of the periosteum is stimulated to deposit a little new bone under the raised portion of the membrane. In this way are formed certain splints, the so-called "false" ringbones (which are as serious as the so-called "true" ringbones), the exostoses known as "cab-horse disease," and those of the extensor process of the third phalanx (commonly called "pyramidal disease").

Among internal troubles which may be the cause of lameness may be mentioned influenza, glanders, strangles, and joint-ill (where specific infections occur in joint cavities or in tendon sheaths, leading very often to abscess formation); variola equina, cryptococcic and ulcerative lymphangitis, eczema, grease, mud fever, and other conditions localised in the skin or immediately below it; azoturia, producing myositis and even anasarca of the gluteal muscles; the rare hypertrophic osteo-arthritis of tubercular origin, in which the perfectly symmetrical alterations appear to depend upon the influence of the trophic nerves; and stagnation of the blood in the lower parts of the limbs, which is sometimes due to heart weakness or disease, sometimes to digestive disturbances, sometimes to excessive overwork of one limb when the

opposite one is so severely injured that it is unable to carry its share of the body weight, and is often seen in heavy horses heavily fed and getting but little exercise.

Of external troubles which may be the cause of lameness, the following should be remembered:—Bacterial infection, which plays a relatively small, but by no means negligible part, and along with trauma may lead to quittors, suppurating corns, etc., or which may act through the blood stream (as already noted); parasitic invasion, such as filariosis of the interosseous muscle (suspensory ligament), symbiotic mange in horses with hairy limbs, and infection of wounds of the foot with the larvæ of the blow-fly (*Lucillia sp.*), etc.; certain more or less physical faults from shoeing, such as nail-binding or too tight toe-clips, and their consequences; and agents which produce their effects on account of chemical or thermic properties, such as caustics, intentional or unintentional blistering by ointments or liquids, burning by quicklime, or line or point firing, etc. In addition to these, and probably very much more important and common, are the direct causal factors which produce lameness by external violence, such as blows, kicks, injuries, slips, falls, half-falls and recovery, etc., etc., which are themselves capable of causing contusions, wounds, fractures, luxations, distensions, ruptures, disinsertions of tendons, muscles or ligaments, etc., etc.

I have mentioned enough of the possible causes of lameness to remind you of their very great diversity and complexity.

Physiology of Normal Movement.

I do not think it wise to delay any longer in what is after all merely an introduction. It is necessary to consider next what happens during normal movement, and to indicate how normal movements may cause, or help to cause, lameness, or may predispose to its production, and as the process is one that is comparatively familiar to you all it should not require much explanation.

The limb (whether fore or hind) has really four distinct phases in making one complete stride.

(1) There is the *swing forward*, beginning when the foot leaves the ground and ending when it again touches the ground in advance of its corresponding member.

(2) There is the *posing of the foot*, in which the weight of the limb, and finally the weight of a portion of the horse's body is received and borne by the foot.

(3) There is the *period of support*, when the whole of the weight borne by the foot passes above it.

(4) There is the "*push-off*" from the ground, in which sufficient impulse must be given to the body, by the muscles of the limb acting around the fixed point of the foot, to carry the animal forward in such a manner as will ensure the continuation of the pace.

The intensity of the stresses to which the limb is subjected during these motions is directly dependent upon the speed at which the horse travels, upon the weight of the horse's body, upon the nature of the ground—whether hard or soft, uphill or downhill—and upon whether a load is being carried or pulled. In all cases the stress and strain of the limb is least during the first stage, when the muscular energy only needs to be such as will lift and carry the limb forward by overcoming its dead weight, and is greatest during the maximum effort undertaken during the "push-off."

(1) It will not be necessary to go into the physiological details of the muscular movements that occur while the limb is in the swinging position, for they are obvious to anyone acquainted with the anatomy of the parts.

(2) The limb considered as an organ of support has to sustain, at the beginning of its period of support, the shock of contact with the ground. This shock is received by the foot, transmitted upwards through the column of limb bones (after a certain amount has been absorbed through the anti-concussion mechanism of the frog and plantar cushion, etc.), and is finally dispelled, or almost so, by the elasticity of the muscles attaching the fore limb to the trunk (serrati, etc.). In the hind limb the amount of shock sustained is comparatively less than in the fore limb, because of the greater weight carried by the latter, and in the hind region it is finally absorbed by the elasticity of the middle gluteal, and the extensors of the femoro-tibio-patellar joint.

In both cases, however, the column of bones in the lower parts of the limbs has passed through it a considerable force of shock, which at least predisposes to bony strains and to overwork of the joint surfaces. The lower in a limb a joint is situated, the greater the amount of shock it sustains—other things being equal. The strength and intensity of the shock vary with the nature of the ground—when the ground is soft and elastic a part of the force is used up in forming the footprint, and the shock is diminished as a result, while on the contrary on hard ground the shock is only slightly diminished, or is transmitted to the bones in its entirety. This, of course, explains why horses working upon hard paved roads, streets, etc., are more liable to bony diseases which compromise the integrity of the bones, than those that are used in the country. The shoeing of the horse is another factor which influences the amount of the shock received. The heavier the shoe the more shock is absorbed, and although some may not agree, I think this is why certain horses become lame when their shoes wear thin, but go sound when newly shod. In another manner may the shoeing influence shock absorption: I refer to the much discussed question of calkins. Horses whose shoes are provided with high calkins never make use of the elasticity and shock absorption mechanism which is situated in the frog, plantar cushion and lateral cartilages. In the normal unshod foot, the frog presses upon the ground and is pressed upwards when the weight descends upon the foot. Above it lies the plantar cushion—a structure which resembles dense rubber in consistency to an extraordinary degree—and on either side of the plantar cushion lie the lateral cartilages, and as the fetlock sinks backwards when the weight of the horse descends upon

it, the phalangeal bones, etc., press downwards and backwards upon the plantar cushion to some extent. In this stage, it is pressed upon from above and in front by the phalanges and from below by the frog. It expands in direction laterally and to some extent backwards. Its lateral expansion is limited by the lateral cartilages, but since these are elastic in the normal foot, they move outwards to the extent of about 1/24th of an inch in each case. When the weight is released from the foot these elastic structures spring back into their normal position, assisting the circulation of the foot to no small extent. Now, in the horse shod with calkins, when the frog does not touch the ground, these functions do not take place, and the force of the shock, which should be disseminated and absorbed by the elastic structures mentioned is transmitted instead up the limb, and has to be sustained by the bones themselves. Herein, I suggest is the strongest possible argument against the use of calkins, at least those of such a height as to lift the frog from the ground, unless the shoe is made with a bar or strap across the heels upon which the frog can press. Comparisons are odious, but may not this be one of the reasons why bony diseases of the feet are commoner in adult horses in the North than they are in the South, where flat shoes are more often used ?

Otherwise, the degree of shock depends upon the weight of the horse, and the pace at which it travels, as well as, to some extent, upon the manner of the posing of the feet. In this latter connection, I consider that excessive limb flexion in the heavy draught horse, such as is at present the fashion in the show yards (especially in Scotland), is not a point to be desired, since it certainly increases the amount of shock that the limb has to withstand. In the case of the hackney, where flexion is carried to the highest pitch of perfection, its importance is perhaps not so great, for now-a-days the hackney is no longer an animal of great economic importance as a medium of transport ; perhaps the greatest amount of its work lies on the turf of the showyard. In any case it has a much greater compensatory flexibility in its fetlocks and pasterns than has the heavy draught horse.

Now, from the point of view of lameness, what is the significance of the shock ? It is the heels and the posterior parts of the feet that have to sustain the greater amount of the shock, and it is these parts which suffer most. There is a smaller mass of bone at the heels than at the toe, the area of attachment between the third phalanx and the hoof is least extensive at the heels, and the parts that have to sustain the shock are relatively more liable to overwork and inflammation. Moreover, the toes of the horses' feet are frequently left too long by the shoeing smith in an endeavour to give the horse a larger looking foot, and the heels consequently suffer. Little by little the toes receive less weight and the heels more, even although the shoe wears away where the greatest amount of friction occurs, *i.e.*, at the toes ; a long toe being conducive to stumbling—and the net result of these circumstances is that the angles of the third phalanx become overworked, inflamed, and, if the process continues, it is only a further step until ossification of the lateral cartilages begins, and side-bones are formed.

At the moment when the foot comes to the ground in a state of extreme extension (after passive flexion), the fetlock descends, straining all the supportive structures in the limb. This lowering of the fetlock is more pronounced in the fore than in the hind limbs, because of the greater amount of weight borne (almost 66 per cent. of the total body weight), and any bad results from this action, sufficient to cause lameness, will be more marked in front than behind. Such bad results are especially noticed in horses used at a fast pace, and it is in them that strains of the suspensory ligament and the superficial flexor tendon (perforatus), which are the real supportive structures of the limb, are noticed most. The limb is in an oblique position in front of the animal, and the two above-mentioned structures are stretched to their uttermost. I do not intend to enter into what appears to be a classic argument as to whether the suspensory ligament is or is not elastic, but its distensibility cannot be great or it would not be so liable to sprains as it is. At any rate, it is well to remember that the sesamoids of the first phalanx (at the back of the fetlock joint) *do not move* up and down the articular surfaces at the back of the metacarpus and metatarsus with each movement of the fetlock, and therefore the distensibility of the suspensory ligament cannot be great, for were this latter elastic they would undoubtedly do so.

During this period in the stride the deep flexor muscle and its tendon are slackened, and it is not when the limb is in this position that they are subjected to any stress or strain, unless for some reason or other the flexion of the interphalangeal articulations is interfered with, so that the descent of the fetlock is hindered, and the origin and insertion of the deep flexor are not able to approach each other as in the normal case. (I would remind you that the origin of the deep flexor tendon, for the purposes of this illustration, must be considered as from the carpus by the check ligament, and not as from the origin of the deep flexor muscle from the olecranon and the shaft of the radius. The reasons are obvious.) I do not mean to imply by this that the deep flexor tendon is less often affected with sprains and thickenings than the superficial tendon, because such is not the case ; the deep is most often affected, but it is not strained in the placing of the foot, but rather during the final stages of the " push-off."

The superficial flexor is more elastic than the suspensory ligament, since section of the first (superficial flexor) only allows the fetlock to descend about two centimetres, while the same operation on the ligament results in a descent of about four centimetres. The suspensory ligament will therefore rupture or distend (*i.e.*, become sprained) more often than the superficial flexor. The latter is relatively protected against sprains by the distensibility of its muscle, and by the relaxation which occurs in the joint between the first and second phalanges during the initial

period of the supporting of the weight, since part of its attachment is to the proximal extremity of the second phalanx.

Owing to the fact that the suspensory ligament (which is stretched during the first period of the supporting of the weight), probably gives a little, the inferior sesamoidean ligaments which continue it below the fetlock are protected from distension to some extent. The same applies to the inferior straight ligaments of the navicular zone (phalango-sesamoidean ligaments), which, by a slight lengthening of the superficial flexor, and by the flexion of the coffin joint, are similarly protected. These two ligaments may, on the other hand, become detached or torn during the phase of the impulsion of the weight, in consequence of the violent extension of the whole digit. The lowering of the fetlock necessitates a lowering of the first phalanx and a by no means negligible flexion of the pastern joint, and at the same time the second phalanx descends and the coffin joint is slightly closed. The flexion in these two lower joints, which is co-related with the lowering and sinking of the fetlock, is proportionate to the amount which the fetlock descends. Therefore, it is in the case of fast horses, where the greatest sinking of the fetlock occurs, that they attain their greatest importance, and it is these horses (more often than those used for slow work), which are attacked with such exostoses as can be considered due to extreme tension of the ligaments in the two lowermost joints of the limbs.

(3). Let us just look for a moment at the action of the limb during the time when the weight of the body is passing above it, and when it is acting as a column of support, perhaps for the whole body (in the canter or gallop), or perhaps for only a fraction of the body weight (*e.g.*, at the walk).

The centre of gravity is displaced laterally in the course of the stride so as to be immediately above the lower extremity of the limb that is supporting the weight. This is an essential of equilibrium. When the near fore foot, for example, is lifted, the trunk is carried across to become above the off fore foot, and it necessarily pushes the upper extremity of the off fore limb outwards, so that the limb becomes oblique from above to below. As the stride progresses, the off fore limb once more becomes vertical, the near fore foot makes its new stance, and the off fore is lifted in its turn. During this inclination outwards and then back to the vertical again, the weight of the body sways over from the inside to the outside of the third phalanx, which is held rigidly in the hoof. The articular surfaces of the second and third phalanges slightly separate the one from the other on the inside, and are pressed into close apposition on the outside of the joint. The same changes are produced to an unequal extent in the articulations higher up, so that in the length of the limb, the weight which the internal halves of the various joints usually support is carried across to the outside, and returns again to the inside when the limb becomes straight. The separation of the articular surfaces on the inside of the limb, the speed of their displacements, and the descent of the displaced weight into the inner half of each surface, is twice as great as on to the external half; and the energy transmitted, as well as the shock sustained by the internal half of each bone, is greater than in the case of the external half. The inner halves of the interphalangeal joints are therefore more liable to overwork, but nature has provided for this by making them larger than the external halves. They are adapted to receive greater concussions. But the increase in size does not occur without a corresponding diminution in the size of the deep flexor tendon, so that the bony resistance to concussion becomes less from the inside to the outside, but the tendinous resistance becomes less from the outside to the inside. The application of this, however, is not so satisfactory as it would at first appear, for it would be hard to say whether ringbones, either high or low, affected the outside more than the inside, or whether tendinous troubles were commoner on the inside than on the outside of the limb.

The lateral inclination of the limb, however, does account for the internal localisation of corns and false quarter. In so far as the latter is concerned, it is evident that the pressure on the foot by the obliquely-placed limb tends to strain the coronet on the inside, and to interfere with the circulation of its matrix, in the first place, and then tends to open any small split that may arise, with each placing of the foot. "False quarter" is not so often seen in the hind feet, because possibly the centre of gravity is farther forward and the side to side oscillations are not so marked.

The inclination of the fore limbs during the period of support also furnishes a reason why a young colt sometimes develops "bowed knees." This type of malformation usually affects colts living out at pasture or used for agricultural purposes on soft ground. Many of them are not bow-legged when they are foals, but begin to show the bending in their limbs when they are two and three years old. The explanation may be that along with some natural softness of the bones, the outside heel imprints the ground deeper than does the inside, as the result of the rolling over of the weight of the body. During the process of grazing the colt requires to lower his head, and leans heavily, say, upon the right foot, which is placed under its body, to the inside, and fairly far forward, the left bearing little or no weight until its turn comes later on, but being held slightly flexed and out in front of the right foot. The right limb is then the only real support for the anterior part of the body, and its outside heel is buried deeply in the soft ground, so that the external ligaments and other structures on the outsides of the series of joints, but especially on the outside of the knees and fetlocks, are stretched to a greater extent than are those on the insides, and the whole limb is thus induced to curve outwards. If the periosteum and the bony tissue at these parts are naturally weak, or if the bone is still undergoing a process of ossification, then the pull of the external ligaments produces

a permanent deformity. But I have no more time for further examples.

(4). During the period of the impulse that is given to the body—what is often known as the "push off"—the main active agent is the deep flexor tendon and its muscle. The limb is stretched backwards; little or no weight is carried; and there suddenly occurs a very powerful contraction and shortening of the deep flexor muscle, which flexes the knee, and each of the phalangeal articulations. Meantime, the superficial flexor and the suspensory ligament have slackened through raising of the fetlock, and the deep flexor alone serves to supply the energy which raises the fetlock, etc., and it is at this stage that ruptures, sprains, strains, etc., of the deep flexor, or of its check ligament, occur.

Just before this flexion, however, there is an opportunity for strains of the structures which bind the phalanges together on their posterior aspects to occur; that is, when the maximum extension of the digit takes place, and before the foot leaves the ground; there often results tension on the periosteum at the back of the first and second phalanges, and wherever any great tension occurs there may follow either tearing away of the insertion or exostoses. The pressure of the deep flexor tendon, at its period of maximum effort, upon the navicular bone is of such intensity that when repeated time after time, or when unrelieved for long periods, *e.g.*, in cab horses, it is not surprising that a rarefying ostitis of its lower surface does occur.

Sandcrack at the toe is an affection mainly met with in hind toes, and perhaps especially in the case of horses that are pulling heavy loads on sloping roads, or when they are subjected to frequent slips, in which the horse learns that the action of the muscles of his quarters and thighs is facilitated by a previous flexion of the lower articulations of the limbs. He "digs his toe into the ground." The hind foot in this way obtains a good grip, especially when toe-pieces are worn. The excessive pressure upon the horn at the toe, however, tends to split it, and the exaggerated slope of the pastern transmits to the toe all the shocks of concussion to which the limb is subjected, so that all the circumstances are conducive to the formation of the sandcrack at the toe. This is probably why it far more often is seen behind than before.

This more or less completes a brief outline of the movements of the limb during a stride, and indicates some of the conditions which may arise as the result of the normal action becoming exaggerated. There now remains to be considered something of the symptoms in a little detail.

Symptoms.—The complete study of a lame limb is not always sufficient by itself. A careful examination of the other limbs is always absolutely necessary, not only because the functional peculiarities which they present may assist in the determination of the lame leg, or of the localisation of the lameness, but also because certain alterations may be present, the existence of which may throw some light on the nature of the alterations which cause the lameness. For example, the abnormality in a foot which persistently buffs or brushes against and causes lameness in the opposite one, may require more attention than the lame limb before the condition is corrected.

Either general or local symptoms may concurrently attack other systems than the locomotory, and be of assistance in diagnosis, such as in cases of glanders, strangles, azoturia, etc. But it is necessary to delay longer over a matter which is obvious.

Symptoms of lameness may be considered under the following headings: (1) Abnormalities in movement generally, (2) abnormalities in the method of posing the foot, (3) abnormalities in the intensity of the noise made in putting the feet down (*i.e.*, the "clatter" of the footsteps), (4) abnormalities in the length of the stride, and (5) abnormalities in the attitude of the horse, and the postures of its limbs.

I.—ABNORMALITIES IN MOVEMENT.

The limbs are alternately in the position of swinging and support. Each of these two periods begins by the limb being flexed, to a greater or lesser extent, when it shortens itself, and ends with the limb extended when it lengthens itself. Before passing on, we must also remember that during the normal movements of swinging the limb moves in a vertical plane parallel to the median plane of the body.

(*a*) Movements of the Lame Leg during its Swinging Period.

(i.) *Flexion and Extension.*—In the first place the flexion may be less or greater than in the normal gait. If the lameness is low down, and especially if it is in the foot, insufficiency in the swing may be recognised by the fact that the lame leg is raised less than the healthy limb, that its shoe is less visible from behind, and that for a shorter length of time. If the lameness is bilateral (*e.g.*, double laminitis, or double corns) the gait is inclined to both sides. An insufficiency of flexion may be ascribed to one of a number of alterations which limit the contraction of the deep flexor muscle, which impede the movements of the phalanges, or of the deep flexor tendon, and later on, are aggravated by the pain they provoke (*e.g.*, laminitis, sidebones, contracted tendons, ankylosed ringbones, synovites of the digital sheath or of the great sesamoidean sheath, wounds in the flexure of the pastern or involving the deep flexor muscle, inflammations in the region of the posterior face of the cannon bones, etc., etc.). There may be adherence between the deep flexor tendon and surrounding structures, such as to the navicular bone in navicular disease, or to the suspensory ligament in bad cases of contracted tendons. Limitation in the amount of the flexion of the knee is seen in painful troubles of this joint, or of the structures which surround it, and in paralysis of the flexor muscles which generally depends upon nerve injury, either in the brachial plexus or to the median nerve.

Inflammation of the sheath of the biceps brachii, which may be caused by a badly fitting collar lacerating its tendon in the bicipital groove, or by blows or

injuries over the belly of the muscle, as well as sprains and distensions of its tendons through slips, etc., may cause diminution in the flexion of the elbow joint, so that this part of the limb is carried forward in the swing in one piece.

In the hind limb faulty flexion is most often shown in the hock; it accompanies painful affections of this region (tibio-tarsal arthritis, sallenders, wounds in the flexure of the joint, and the acute osteo-arthritis of spavin at its commencement), or it may be seen in such conditions as rupture of the tendon of the peroneus tertius—an accident which impairs the passive automatic flexion of the hock.

Flexion may be absolutely impossible or only performed with difficulty in the whole of the hind leg. In cases of "slipped stifle" (in which the patella becomes hooked up on the outer upper lip of the trochlear surface of the femur) the limb remains extended and rigid out behind the animal during such movement as can occur. In cases of incomplete slipped stifle, *i.e.*, when the patella slips with difficulty on to its trochlear surface after having been fixed upon the plateau above the outer lip for the fraction of a second, the raising of the limb is hesitating, tardy, and then sudden, and is habitually accompanied by a movement of pronounced abduction, and even is sometimes succeeded by an exaggerated movement not unlike stringhalt.

Excessive flexion may also be observed. In the fore limbs it is rare, but may be seen in conditions when there is some painful condition affecting the toes of the feet, such as acute seedy toe or keratomata. In such cases the limb is snatched up from the ground, and may even be held suspended for a moment before being again placed upon the ground, and the stride of the lame leg is usually shortened. An exaggerated flexion is much more commonly seen in the hind limbs. In spavin, before ankylosis of the small bones has occurred, one of the most constant symptoms is a more or less pronounced raising of the foot, and accompanying elevation of the corresponding quarter, causing a "hitching gait." The low joints of the limb are excessively flexed, and the shoe is more visible and for a longer time than in the case of the healthy leg. This phenomenon has apparently for its aim the shortening of the leg to such a degree that the foot, during its flight forward, will be guaranteed against encountering the ground. The hock is, of course, less flexed than usual, but the other joints are excessively flexed, and the balance of the horse is thrown across to the opposite side as much as possible. In this connection it is perhaps as well to point out that flexion of the hock and stifle are interdependent. Any dimunition or increase of flexion in the one necessitates a corresponding alteration in the other.

Stringhalt is essentially characterised by an extreme flexion of most or all of the joints of the hind limb. It may be so excessive that the foot may almost strike the lower surface of the abdomen, and it is especially remarkable on account of the excessiveness and brusqueness of the hock flexion. This peculiarity appears to be due to a kind of automatic flexion that occurs after the ordinary flexion has carried the limb up to a certain point, which results in a sudden convulsive upward projection. The flexion of stringhalt typically consists of two stages; the first is active and brought about by the action of the flexor muscles of the hock, and the resulting flexion carries the limb into an over-flexed position; this, however, necessitates extra time, and to hasten the movement the horse effects a second more powerful contraction of the muscles which results in a greater or lesser degree of second over-flexion, *i.e.*, the characteristic snappy jerk of stringhalt. It appears probable that a certain amount of the second part of the movement is due to the automatism already referred to. This is due to the anatomical arrangement of the lateral ligaments of the joint. If a dissected hind limb, in which the muscles have been removed, but in which the ligaments have been preserved, is fully extended and then flexed there comes a time when it will automatically flex itself, and remain so until again forcibly extended. It would seem that stringhalt, in the first place, is due to some hindrance to ordinary flexion, not necessarily in the hock itself, and that the horse has to make an effort to bring about enough flexion for the purposes of the gait, but that when a certain point has been passed the automatic movement in conjunction with a second effort of flexion is responsible for the upward jerk. It is often easy to cite possible causes of the primary inhibition to flexion of one or other of the joints, ***e.g.***, sand crack, toe binds, intermittent or incomplete "slipping of the stifle," dry arthritis of the stifle, etc., but in such cases the stringhalt is more correctly of a symptomatic nature only. In a case of idiopathic stringhalt the cause may not be directly perceived, but the cures obtained by certain surgical measures, such as section of the peroneal tendon, medial patellar desmotomy, etc., would suggest that the way in which they act is to offer still greater hindrance to the flexion of one or other of the joints concerned. On the other hand it may be that there was undue tension upon the peroneal tendon or upon the medial patellar ligament, which was the cause of the stringhalt, and that the section of these relieves the hindrance to flexion. I am afraid I must leave the matter open. In any case, stringhalt is aggravated by the shock to which the foot is subjected, for we all know how much worse a horse goes on hard surfaces, and how much more rapidly the condition progresses in fast horses, than when the contrary conditions hold good. The repeated blows upon the ground overwork the joint surfaces, and make the raising of the limb more laborious in consequence. The condition is rendered more pronounced by making the horse pivot round upon the affected leg, but trotting often causes it to disappear temporarily. Possibly the reason for its disappearance is that the faster gait produces a more lively neuro-muscular excitement with more energetic contractions of the flexors *and extensors* of the hock. One other point in this connection is that it very often disappears after the first few steps have been taken, especially when not at all advanced. I suggest that this is due to the fact

that the experience of the animal at the beginning of the pace permits it to adapt its muscular actions to the necessities of the situation—the compensatory effort is only sufficient to overcome what hindrance to flexion there has been instead of being excessive. The flexion of the hock does not go to the stage when the automatism comes into play, the brusque flexion is not produced, and the stringhalt proper disappears.

The extension of the limb may be almost absent or at least less than usual. In paralysis of the radial nerve the scapulo-humeral joint remains open, the elbow is lowered more than usual, and the normal tension and rigidity of the knee and phalangeal joints disappears or is incomplete. If the condition is very severe, the limb falls passively to the ground and drags along in the position of the beginning of the swinging period. The gait may be corrected to some extent by artificial extension, by means of a long plate attached to the toe of the shoe when the foot comes to the ground and weight is placed upon it the foot is made to sink back on to the heels, the structures at the back of the limb are tensed and the knee and fetlock joints are forcibly extended.

On the other hand, the extension of the lame limb may be more pronounced than usual. In classic laminitis with the inferior regions of the fore feet affected, the foot comes to the ground upon the heels a long way in front of the opposite member, so that the heels take all the shock, and the same peculiarity is seen in other painful troubles specially affecting the toes. Exaggerated extension is also seen in some cases of shivering in front; its explanation defies analysis, but it is then probably due to some lesion in the spinal cord (*e.g.*, myelitis), causing either a stimulus to the extensors, or more probably an inhibition to the flexors. The over-extension of the limb, which occurs at the commencement of the lameness that characterises thrombosis of the iliacs is due to the ischæmic condition that occurs in the limb after a certain period of exercise. It may not be seen in all cases, but when it is the hind legs become stiff and move all in one piece; they are dragged along the ground (instead of being lifted by flexion of the joints) during the period of swinging of the leg, until the gait is interrupted by the fall of the animal.

As already mentioned, the hind limb remains in a state of passive backward extension in "slipped stifle;" the patella is not able to extricate itself from the upper outer flat surface above the trochlear lip, the stifle remains extended, and, since the two joints are incapable of independent movements, the hock also remains extended. The horse drags behind him a rigid limb.

(ii.) *Adbuction and Adduction.*—The lower extremity of the lame limb may be carried to the outside as the result of any diminution in the flexion which results in an insufficient shortening of the limb, and makes it liable to encounter irregularities of the surface of the ground in the process of moving forwards; the oblique line being longer than the vertical line to the same plane. Pronounced abduction is seen in cases of navicular disease, in contraction of tendons, in cases of very painful wounds or rope-galls of the pasterns and heels, in open knee joints, and in other very painful conditions. Abduction is an irregularity that is almost confined to the fore limbs, for the hind limbs are able to avoid the ground by making excessive flexions, but, at the same time, horses with spavins or stringhalt often carry the affected limb well to the outside. Abduction also relieves the horse to some extent of pressure upon the external quarter or heel by throwing the weight to the inside more than in the normal. (Hence the phrase that "the horse lame on the *outside* of the foot *walks to the outside.*"—Huret.) Since it is produced by the shoulder, abduction is said by some authors to be characteristic of shoulder lameness, but while it certainly may often be present in such, I do not agree that it is pathognomonic or pathognostic of lamenesses of the shoulder.

Adduction generally indicates a painful condition of the inside of the foot (*e.g.*, a corn, an ostitis, or a nail-bind, etc.), and has for its object the shifting of the weight on to the external part of the foot. (Hence the phrase "The horse lame on the *inside* of the foot *walks to the inside.*"—Huret.) It may also be seen as the result of some painful alteration in, or paralysis of, the adductor muscles, and it has been noticed in cases of exostoses of the inner surfaces of the scapula and upper extremity of the humerus. Perhaps it is seen to its most marked extent in cases of mastitis in the suckling mare, when it has the object of relieving the mammary gland from as much pressure as possible.

(*b*) Movements of the Lame Limb during its Supporting Period.

(i.) *Flexion and Extension.*—The flexion of the limb, which immediately follows the posing of the foot,is diminished in practically all painful lamenesses. The animal limits the flexion so that the body weight, which is the cause of this flexion, falls less intensely on the suffering limb. This is the reason why the croup remains more elevated on the lame side than on the sound, when the animal is lame on one limb behind. In some forms of lameness, however, this flexion (or sinking of the limb) becomes more pronounced, and then it usually indicates a lesion of a paralytic nature, attacking the extensor muscles (*e.g.*, the myositis of azoturia, paralysis of the quadriceps, myelitis, cerebro-spinal meningitis, thrombosis of the iliac arteries, etc.). In thrombosis of the main arteries of the limbs, which is commonest behind (iliac), but may be seen before (axillary), the standing position, and even the beginning of the gait may be normal; the arterial circulation only becomes insufficient in the muscles after a certain time of exercise. Their functional activity lessens, the supporting limb is drawn well under the body, the limb often becomes stiff, and a little while after, if the animal is bilaterally affected, the animal refuses to move, and may fall to the ground. The phase of stiffness which often precedes the actual paralysis is an ischæmic contraction in which all the joints of the limb or limbs are extended during the supporting period as well as

during the swinging period, which has already been referred to.

Individual examination of the joints may furnish useful information from the point of view of the movements of the limb during its supporting period. The fetlock may sink too much or too little; it excessively descends when the tendons of support, or some of the ligaments (especially the suspensory) have become ruptured or disinserted. This accident to the superficial flexor tendon (perforatus) results in a less pronounced descent than in the case of the deep flexor (perforans) of the inferior sesamoidean of the suspensory ligaments, and in a more pronounced descent than is seen in that rare condition in which the capsule of the fetlock joint is torn away. In several cases when the descent of the fetlock attains a certain degree it causes a corresponding and consequent tilting of the toe of the foot, so that it may actually leave the ground and remain turned up. This is particularly well seen in rupture of the deep flexor tendon. In it the normal downward and backward pull of the tendon at its insertion into the third phalanx is out of action, and the weight falling behind the geometric centre of the foot causes it to tilt. In excessive flexion of the fetlock (*i.e.*, when the fetlock is held in a very upright position) if often happens that a moment before the lifting of the limb the fetlock briskly knuckles forwards, sometimes even touching the ground. Upright pasterns and fetlocks are almost always due to a lesion which produces a shortening of the flexor tendon, either directly or indirectly, and the fault is due to the fact that the deep flexor receives an excessive strain from its muscle just as the foot leaves the ground. The same thing is also seen in rupture or disinsertion of the extensor tendon, and in paralysis of the superficial peroneal nerve. On the other hand, one may often observe, apart from all visible alterations, whether it be the termination of each supporting period, or whether it be when the horse is standing comparatively still, but moving a foot occasionally, a sharp jolt of the fetlock which carries it briskly forward and then allows it to fall back into its previous position again. This peculariity is, I think, confined to the hind limbs, and appears to cause neither pain nor inconvenience. Some authorities apply to it the name of "false knuckling."

In radial paralysis the knee, when it flexes, necessitates a flexion of the whole leg during the period of support; this is directly due to the faulty action of the heads of the triceps attached to the olecranon, and to the loss of power in the antagonistic extensors of the knee. The rigidity of the knee is also compromised by any excessive uprightness of the fetlock. When knuckling occurs the fetlock joint falls forwards, the tension upon the suspensory ligament and the deep flexor is released, the knee flexes and the horse is liable to fall forward.

In the hock one may find excessive flexion as the cause of accidental "hamstringing" (severance of the Achilles' tendon), and in those disinsertions of the tendon from the calcaneus, which make animals (especially cattle) plantigrade. This is a condition that is not unknown during the course of so-called infectious rheumatism of young bulls.

(ii.) *Abduction and Adduction.*—Special abduction occurs during the supporting period, when the neck of the scapula has become fractured; in this condition the shoulder joint is held rigidly pressed against the trunk, but the elbow joint is pressed outwards and it carries with it the rest of the limb. In other cases it generally happens that even though the limb is abducted during the swinging period it comes to rest well under the body during the supporting period, *i.e.*, it is diminished. Adduction, on the contrary, is almost always exaggerated, *i.e.*, the limb is usually placed farther under the body during the period of the bearing of the weight. Instances of this are numerous.

The hind legs sometimes show abnormal oscillations outwards and inwards in certain forms of shivering, and in inertia of the muscles of the loins (*e.g.*, such as is seen in myositis of the loin muscles, and in cases of fracture of the vertebral column without displacement). The affected muscles become stiffened and there results a default of "push" and flexibility in the quarters, causing a hindrance of the function of the hind legs and an alternate swinging of the hind quarters to right and left. This lateral oscillation results in a corresponding displacement of the upper extremity of the weight-bearing limb. During movement, the leg is situated far too far under the body and too near its opposite member; the quadrilateral base of support becomes too small, and the animal is liable to stagger or fall. The alternate balancing from one side to the other gives rise to a staggering or wobbling gait, which is sometimes called an "intercrossed gait," because, on account of their excessive reciprocal proximity, the strides may cross each other, or the two feet may strike each other.

Many horses, especially when old or overworked, pivot round on the toe of the hind foot during the period of weight-bearing, in such a way that the whole of the posterior parts of the feet are carried outwards with each stride and the hocks move away from each other. It does not cause lameness of its own accord.

(To be continued.)

Veterinary Service in Bengal.

We hear from a correspondent that the following are the conditions at present obtaining in Bengal, the writer stating:—

There are plenty of vacancies in India, but I cannot advise anyone to think of accepting one. I was given to understand it was an excellent service, in fact, the impression I received when I was interviewed, was that if I was careful I could save money from my salary, and naturally it was pointed out that it was a pensionable service. The impression was false, and any veterinary surgeon who accepts the conditions as they now stand, is merely asking for an exceedingly worrying time in an excessively nasty climate.

I will try to give you an idea of things as they exist in Bengal. One commences on a salary of Rs. 500 per month (nominal). It is really about Rs. 455 after deducting income tax and subscription to the Provi-

dent Fund. Keep that figure well in mind, because I am now going to make some deductions. Living in a boarding house, because that is cheapest, costs Rs. 250 at summer rates and Rs. 300 at those of winter. I am giving the lowest rates in everything, and make no allowances for your being in a foreign country, away from friends; no allowances for comfort or amusements; in fact, no allowances for anything except bare living. Add to this board and lodging certain necessities, such as a bearer at Rs. 25, washing Rs. 10, tram to and from work Rs. 10, and lunch Rs. 27. and you have left Rs. 133 per month. Out of this you pay for your two outfits of day and evening clothes, costing anything from Rs. 30 to Rs. 60 a suit, replenish your wardrobe, buy hats, boots, soap, stationery, boot polish and all other odds and ends; the remainder (?) you may put to your credit for passages when you take leave, club subscriptions, drinks and amusements. This, as you may guess, means that leave is for years useless to you, as you cannot afford to pay your passage, that amusements are out of the question, that you have to be very careful not to take anything stronger than soda water and the cheapest cigarettes, that if you make any friends you cannot offer them a drink, and that if you save up enough to become a member of a club, you dare not use it, because your club bills might break the bank.

You are allowed private practice, but how are you to visit your patients? You certainly cannot afford a car, or a horse and trap, and if you hire taxis any profit disappears. You receive no outfit allowance; if you have no money of your own when you arrive you outfit from your pay.

It is only when you are married that you receive a house allowance, and that makes it hardly worth while to marry, being 90 Rs. a month in summer, and Rs. 60 in winter. One presumes this distinction is made because you use slightly more electricity in fans during the summer trying to keep cool.

The annual increment of Rs. 50 per month is a relieving feature, but one must remember that it may be stopped if one does not pass the language test, for instance, for which one receives nothing, and a good teacher asks Rs. 60 per month.

I have been talking as a bachelor hitherto, now as a married man. You pay in a boarding house at least Rs. 450 per month for food and lodging, then come the usual expenses as for a bachelor. If you want a place of your own, rents of a flat run from the cheapest, Rs. 300, to anything. They are mostly round about Rs. 400 and no garden. Then you have a cook, kitmagar, bearer, mesalebi, sweeper, mali, dhobi, coming to about another Rs. 150. Daily bazaar Rs. 150, stores Rs. 50. It is far too hot to let your wife walk to go shopping—that means taxis at 8 annas a mile; she cannot use the trams for various reasons. Then there are her boots, clothes, passages and all sorts of things. You cannot expect her never to get any amusement, and that necessitates the use of taxis to the theatre, seats at Rs. 5, and taxi back; picture houses cost from Rs. 2 a seat upwards. Milk, bread and butter do not count in the daily bazaar—they are extras.

The Veterinary Record.

24th January, 1925.

THE MEETING OF THE COUNCIL OF THE ASSOCIATION.

This week we publish the report of the meeting of Council which took place at the beginning of the month. Owing to limitations of space a proportion of the discussions have had to be omitted, but our readers will be able to judge for themselves the amount of business which had to be dealt with. In the first place, it is satisfactory to record that the Army Council has duly noted the recommendation of the Association regarding the remuneration of civil veterinary surgeons engaged on remount duty. Also, the letter from the Ministry of Agriculture regarding the Tuberculosis Order is satisfactory so far as it goes. There is not now much doubt that the order will be introduced once more, if the Treasury can be prevailed upon to find the necessary money; and before the latter department is likely to move in the matter, the whole subject will be brought before the House of Commons and a vote taken upon it. If this course is taken, as we believe it will be taken, then it is important that every member of Parliament should be conversant with the Order, and the necessity for its re-introduction. To this end the Council has decided to send to all members of Parliament a short statement on the subject, such as was sent to Sir P. Cunliffe-Lister. This is a very clear and concise document which has been drafted by our President, and which contains most valuable information which should convince any but the most sceptical and unbelieving of the urgent necessity of some measure to control tuberculosis, if only for the safety of the lives of our young children.

Consideration was given to the question of mineralised methylated spirit, and representations have been now made to the Board of Customs and Excise regarding the introduction into methylated spirit of the substance pyridine as a denaturing agent, thus rendering it unfit and unsuitable for use in dispensing owing to its irritant properties. The Association asks for similar concessions as may be given to pharmacists, medical practitioners, and nursing institutions in being allowed to purchase and store the spirit without the addition of pyridine.

The most gratifying part of the proceedings of Council was the receipt of the applications from five veterinary societies for affiliation. This alone proves

abundantly that the Association is acknowledged as the most influential, and in fact, the only body established to deal with matters of moment to the practitioner. We all owe our allegiance to the Royal College, but it will become more and more evident that it is to a body other than the governing body that members must look for help in the every-day work of their profession. Thus the British Medical Association holds a position of its own and does work which everyone must admit is of the highest importance, and yet it is work which could hardly be undertaken by the General Medical Council. It has taken the British Medical Association some seventy years to attain its present position of power. That our own Association has done so well in its short existence can only be a source of the greatest satisfaction. It is also most satisfactory that during the first week of the new year we should be able to report forty-three new members' applications received, and we expect a large increase in membership during the year. We draw especial attention to Mr. Harvey's scheme for the clinical prize competition for students. This is, we believe, a step in the right direction, and we think it will find a welcome not only amongst students but amongst practitioners, who may see in it a means of training our young men to be observant and careful, and therefore to be better clinicians.

The election of Committees calls for little comment at present. This is the first time Standing Committees have been elected under the new Articles of Association, and it is open to question if the mode of election adopted is the most satisfactory. At all meetings there is a natural tendency to elect (or at least nominate) those who happen to be present at the time, to the exclusion of others who conceivably might be of greater value, the latter being overlooked. It is probably a question of " out of sight, out of mind." There are some valuable members of our Association whose names do not appear on the Committees, and the Association must be a loser thereby. Time and experience will, however, help to secure for the Association the services of the best men in the profession, for it deserves nothing less; the best brains are needed if progress is to be made.

Finally, it will be interesting to see how the new Organising Committee will function. It has scope for an immense amount of work, and it can do an infinite amount of good. Incidentally, it can do harm if great care is not taken in all its proceedings. It is a question whether this Committee is not too large with its present membership. It is the opinion of many that the work to be done would be best done by four or five men of great experience, in whom the Association had complete confidence, and we think that probably this opinion will gain in weight as time goes on.

National Veterinary Medical Association.

Quarterly Meeting of Council.

A quarterly meeting of Council of the Association was held at the Royal College of Veterinary Surgeons, 10 Red Lion Square, on Tuesday, January 6th, 1925.

The President, A. Gofton, Esq., occupied the chair, and the Attendance Book was also signed by the following: Messrs. Buxton, Bryden, Carter, Catmur, Dawes, Dunkin, Hobday, Kirk, McIntosh, Male, Rees, Simpson, A. E. Willett, J. Willett, Wood, and Young, together with the General Secretary; Mr. W. S. Petrie was also present.

Apologies.—Messrs. Begg, Cartwright, Clarkson, Coleman, DeVine, Gaiger, Gooch, Gunning, Hughes, Lloyd, McAlister, Roberts, W. Scott, Shipley, S. Slocock, Whitehouse and Wooldridge.

The Secretary read the following correspondence.

A letter of good wishes for the coming year had been received from Mr. Macdonald, Hon. Secretary of the Central Division.

A letter, published in the *Record* was, at the request of the writer, Mr. J. S. Lloyd, brought to the notice of the Council, containing suggestions for the improvement of the Veterinary Section of the Royal Sanitary Institute Congress, and it was agreed that the letter be allowed to lie on the table.

A letter from the War Office, acknowledging the resolution of the Association passed at the Annual General Meeting, and containing an assurance from the Army Council that, in the event of mobilization, prevailing conditions would be taken into consideration, and a suitable rate of remuneration offered to Civil Veterinary Surgeons employed in connection with Horse Purchasing Duty, and adding that the rate recommended in the Resolution passed at the Association's Annual General Meeting had been duly noted.

The Secretary reported that, as instructed at the Aberdeen meeting, he had circulated to all the divisions the resolution from the Western Counties' Division expressing the opinion that the time had arrived when veterinary surgeons should be paid an adequate fee for their attendance at dog shows. Letters in support of the principle were then read from the following divisions: Central, Derbyshire, Dumfries and Galloway, Eastern Counties, Royal Counties, South Eastern, and Yorkshire. The Southern Counties' was the one division in favour of matters remaining as they were.

Further consideration of the matter was deferred pending the receipt of more complete returns from the divisions.

Letters of resignation were presented from Messrs. W. McPherson (Huntly), A. S. Westworth (Croydon), and W. Reekie (London).

The Secretary of the Western Counties Division, having written informing the Secretary of the death of the division's Hon. Secretary, Mr. W. P. Stableforth, the President gave expression to the deep regret with which the information had been received.

Mr. Stableforth had taken a very active part in the work of the Association; in the first place as the Secretary of a local division, and also as the local Secretary of the very successful Congress held by the Association at Bath two years' previously. In asking them to pass a vote of sympathy with the relatives, he had, he regretted to say, also to ask them to include in their tribute of sympathy the relatives of Mr. R. Porch, of Bristol, of whose decease he had just been informed. Mr. Porch had been prominent in the formation of one of their strongest divisions—the Mid-West and South Wales.

The motion was carried *sub silentio*, the members standing, and the Secretary was instructed to send a letter of sympathy with the Western Counties Division, in view of the fact that Mr. Stableforth died in office as their Secretary.

A Resolution, forwarded by Major Hobday, urging the re-introduction of the Tuberculosis Order of 1914, which was unanimously passed at a meeting of the Surrey Branch of the British Medical Association on November 11th, was received with satisfaction.

Mr. Kirk had written to the Secretary enclosing the draft of a letter which he had sent to Sir Philip Lloyd Greame (now Sir P. Cunliffe Lister) when the latter was a candidate for Parliament, drawing his attention to the need for the re-introduction of the Tuberculosis Order. Sir Philip had also been placed in possession of an abstract of the information regarding the necessity for the re-introduction of the Order. Sir Philip had replied thanking Capt. Kirk for the "very interesting memorandum on the Tuberculosis Order," and expressing his willingness to bring the matter privately to the notice of the Ministry of Agriculture. Mr. Kirk had also forwarded the following letter which had been received from the Minister of Agriculture and Fisheries: "The President of the Board of Trade has forwarded me your letter of the 11th December and memorandum on the Tuberculosis Order of 1914. This question has already received my attention, and I am examining the matter carefully. I am very glad to have your memorandum, which I have read with interest."

Mr. KIRK: I should like to suggest, now that you have heard this correspondence, that a copy of that memorandum should be sent to all members of Parliament.

The SECRETARY: I have also had a suggestion that a copy should be sent to every member of the Association.

The PRESIDENT: The memorandum is a broad general statement of facts which I prepared, and I suggest that, if it is to be distributed, it should be revised at one or two points, and should, therefore, receive the attention of a small committee.

The meeting concurred, and appointed the following Committee: The President, Secretary, Prof. Buxton, Mr. Dawes, and Mr. Male.

ELECTION OF NEW MEMBERS.

The SECRETARY: In conformity with the new articles of association, I bring before your notice the names of the following gentlemen who have applied for membership of the Association, as from January 1st, 1925:—Messrs. N. Bissett, W. T. Hewetson, J. Danskin, W. W. Kerr, C. H. Strachan, H. C. Reeks, jun., J. Richardson, W. Hughes, J. C. S. Powell, R. B. Nelder, H. Jewell, J. Rae, R. Lovell, A. C. Shuttleworth, L. A. Watson, E. Dunstan, J. Hill Motion, P. Matthews, J. E. Wallis, W. Graves, J. Stephens, L. Norman, A. E. Ward, J. C. Gaunt, E. G. H. Sewell, E. P. Barrett, B. Best, A. B. A. Stone, H. Thompson, R. C. Irving, W. A. Burns, N. Dobson, J. R. Carey, R. W. McKinna, K. D. Downham, W. A. Jalbart, J. R. Jackson, P. M. Edgar, E. C. Lloyd, J. Stephens, R. P. Parsonage, Guy Sutton, and D. E. Pugh. These gentlemen were duly elected members of the Association, the President expressing gratification at their number.

The new membership forms were submitted and approved.

THE INCORPORATION OF THE ASSOCIATION.

The SECRETARY, in the course of a statement of the position of affairs in regard to the incorporation of the Association, said that on the 31st December, Special Resolutions were passed at an Extraordinary General Meeting, winding up the National Veterinary Medical Association of Great Britain and Ireland, Ltd., and transferring the whole of its assets and liabilities into the hands of the Liquidator. The Association had appointed him to the office of Liquidator. The new Association, i.e., the National Veterinary Medical Association, without the word "Limited," had not yet come into being, for the following reason: At the last moment the Board of Trade required the consent of the Royal College of Veterinary Surgeons to their incorporation without the word "Limited," it being the one chartered body which conceivably might desire to have a say in the matter. It had been impossible to obtain the consent of the Council of the College because it had not yet met, and would not do so until the following Friday, when there was every reason to believe that itwould express its acquiescence in the incorporation of the Association, and they had been informed by the Board of Trade that when that was an accomplished fact the licence would be issued.

So far as the liquidation was concerned, continued the SECRETARY, everything was going quite satisfactorily. They would have noticed that Notices of Meeting in respect of liquidation and of creditors had appeared in the *Times* and the *Daily Telegraph*. The meeting of creditors would be held on the following Wednesday, and he could see no reason why that whole matter should not be settled up very quickly. A period of waiting had, however, to elapse before the Company went entirely out of existence.

APPLICATIONS FOR AFFILIATION.

The SECRETARY announced the receipt of applications for affiliation to the Association from the following bodies: Glasgow College Veterinary Medical Association, Dublin Veterinary College Students' Union, Ayrshire Veterinary Medical Association, the

Association of Veterinary Inspectors (Ministry of Agriculture and Fisheries), and the newly-formed Association of Veterinary Officers of the Imperial Secretary's Department, Northern Ireland.

The PRESIDENT: It is very satisfactory to have these applications for affiliation. (Hear, hear.) They are all in order, except that in the case of the application from the Glasgow College the fee has still to be received. I therefore, move from the Chair that, subject to the receipt of the fee mentioned, all the applications be granted.

The proposition was seconded and approved, the SECRETARY informing the meeting that the Association now had affiliated to it every veterinary association, within his knowledge, in the United Kingdom.

SCOTTISH NATIONAL MILK AND HEALTH ASSOCIATION.

The PRESIDENT: In England, following on the lines adopted in America, a National Milk Publicity Council has been formed. It is backed up by educational bodies, public health authorities, and many other similar organisations. Its object is to increase the production and consumption of milk, and generally to circulate any information which is available with regard to milk. In Scotland a similar movement is on foot: there the various bodies interested were collected together with the object of discussing the formation of a similar Association, to be called the Scottish National Milk and Health Association.

The PRESIDENT read a statement of the aims and objects of the Association, and proceeded: Arising out of a Conference held at Glasgow, a Committee was formed with the object of drafting a constitution for this Association. A constitution was drafted, and it provided for the appointment of a Provisional Council, which was to do the preliminary spade work. This Provisional Council was to be formed of representatives from producers, consumers, public health authorities and, amongst others, the Scottish Branch of the "National" was invited to nominate two representatives on the Council. Two were appointed: Mr. W. W. Peggie and myself, and we have attended one meeting. The Provisional Council was only to function until such time as a permanent Executive Council was formed, and upon that Council it was thought possible that we might obtain representation.

I wanted merely to put this before you, and to suggest that it was desirable for us to keep this organisation in mind and see whether, at an appropriate time, it might be desirable for us to have representation. Unfortunately, in England, the National Milk Publicity Council does not include any representative of the veterinary profession.

It was agreed that the President and Secretary keep the matter under observation, to be dealt with at the appropriate time by the Organising Committee.

MINERALIZED METHYLATED SPIRIT.

The SECRETARY: A question has arisen regarding the introduction of pyridine into methylated spirit, so as to make the latter unsuitable for consumption by human beings. It has been found that pyridine acts as a skin irritant, and it is largely used in the preparation of liniments. The pyridine renders the spirit unsuitable for use as a lotion to harden the skin and prevent bedsores; it is also incompatible with picric acid. The matter was raised at the British Medical Association's meeting at Bradford last July, and a Resolution was adopted asking the Council to take such steps as are possible to get the use of pyridine discontinued if the spirit is supplied to the order of a medical practitioner. In accordance with that Resolution, the Board of Customs and Excise was urged to take immediate steps to meet the situation. The Board replied that it was hoping to arrive at a solution of the difficulty in a short time, but in the meantime applications from hospitals and bona-fide nursing homes for permission to receive industrial methylated spirit would be considered, provided the spirit was used strictly for medical and surgical purposes and not for burning. The Board of Customs and Excise has informed the Medical Secretary of the B. M. A. within the last few days that it is proposing to issue regulations dealing with this question, and will give the Association an opportunity of seeing the regulations before they are issued. (*Vide British Medical Journal*, December 27th, 1924.) That raises the question whether this Association would not wish to be consulted also.

Mr. MALE: I think we should support the British Medical Association on this point. It is more important, indeed, to the veterinary surgeon than to the human practitioner, because so much methylated spirit is given internally to our patients.

The Secretary was instructed to take steps with a view to securing consideration by the Board of Customs and Excise for the views of the Association, with those of the British Medical Association, before the issue of the proposed regulations.

REPORT OF THE FINANCE COMMITTEE.

The SECRETARY read the following report of the Finance Committee:

The Finance Committee has held four meetings.

With reference to the resolution passed at the annual general meeting regarding the payment of a salary to the General Secretary, the Committee were unable to come to a decision on the motion as submitted to them. It was, therefore, decided to ask the Council to remit to the Finance Committee the consideration of the office staff, together with the salary and the terms of the appointment of the General Secretary.

The Council having passed the following resolution: "That the terms of the remit to the Finance Committee decided upon by the annual general meeting at Aberdeen, be adhered to," the Committee decided that a salary of £500 per annum be paid to the General Secretary as from September 9th, the date of the annual general meeting, and that the salary be reviewed at the commencement of each financial year.

The following further resolution was passed:—"That it be placed on record that this Committee do not consider that the salary granted to the General Secretary is commensurate with the importance of his duties, but they feel that the financial position of the Association at the present time does not permit of the payment of a larger amount."

The accounts of the Local Secretary at Aberdeen were presented, showing that the local expenses of the Congress

amounted to £402 4s. 6d. and the receipts to £402 6s. 0d., leaving a credit balance of 1s. 6d. The accounts were passed and the Local Secretary thanked and congratulated on the result.

The usual grant of £10 was made to the Victoria Veterinary Benevolent Fund.

A new filing cabinet for the office was authorised to be purchased, owing to the present arrangements being quite inadequate to deal with increasing number of documents and the correspondence of the Association.

It was decided to recommend to the Council that a Presidential Chain of Office be obtained and to inform them that the Committee also approved the principle of a membership badge. Consideration of the question as to whether the latter should be a Congress badge or an Association badge was deferred.

It was agreed that Mr. G. H. Livesey be recommended for appointment as Liquidator in the winding up of the Association and registration of the new Association, at a fee of 25 guineas.

The Secretary presented the draft accounts, as made out by the Auditors, for the year 1924.

The Committee decided to allocate a sum not to exceed £50 for the purpose of advertising the *Veterinary Record* in three foreign journals, recommended by the Editorial Committee.

The report was adopted, on the proposition of Mr. McINTOSH, seconded by Professor BUXTON.

SEAL OF ASSOCIATION AND INSIGNIA OF OFFICE.

The Council considered a design which had been submitted for the seal of the Association. The SECRETARY informed the meeting that he hoped to receive other designs from manufacturers, and that all he required at that moment was the Council's assent to the adoption of the Centaur Chiron as the central figure of the design. It was necessary to have the seal made as soon as possible, as it would have to appear on the documents of the new Association. With regard to the Chain and Badge, it was just possible that these might be presented to the Association.

Major SIMPSON spoke strongly in favour of the suggestion made at a meeting of the Finance Committee, that every division of the Association should be afforded the opportunity of presenting one of the links of the chain. Other members supported.

The SECRETARY was empowered to proceed with the purchase of the Seal, and the following were appointed a committee to deal with the Insignia of Office: The President, the Treasurer, the Secretary, Dr. Bradley, Major Hobday, and Major Simpson; it being understood that the Council approved the Finance Committee's recommendation as to divisional responsibility for individual links.

STUDENTS' CLINICAL PRIZE COMPETITION SCHEME.

The SECRETARY: Mr. F. T. Harvey, a Vice-President of the Association, who is, unfortunately unable to be with us to-day, recently came to see me in London, and outlined a scheme for a clinical prize competition for students. Mr. Harvey had put forward his scheme with the idea that its adoption might encourage the practice of clinical note-taking amongst veterinary students. In this connection, Mr. Harvey had written: "There has always been a scarcity of good clinical descriptions in veterinary literature, and such a course might tend to create interest in the matter amongst the coming race of veterinary surgeons. Clinical recording is an art rarely acquired or fostered late in life, but which, when begun early and continued, becomes of untold value to the individual practitioner, and to the advancement of medicine generally." The following is the outline of the scheme:—

1.—Prizes to be offered annually to veterinary students for the best collection of clinical notes. Such notes to be descriptive of cases or outbreaks of disease, etc., actually seen or met with in practice, together with any comments or discussions relative to the same as the student may think fit to add.

2. In order not to interfere with class-work in the Colleges, such notes are to refer to cases actually seen during vacation periods in a veterinary practice.

3. All students studying in Colleges recognised by the Royal College of Veterinary Surgeons to be eligible, and the student may compete in any year or series of years, or one set of notes might comprise the work of more than one year.

4. All notes for competition to be delivered to the Secretary of the National not later than the 7th October of each year.

5. The President and Council or a Committee shall select a panel of three assessors or judges to make the award.

6. The Council shall select and publish with the name of the student in the *Veterinary Record*, from time to time, any part or section of such notes as may be deemed suitable.

6. Prizes, according to the liberality of the Council.

It was agreed to remit this matter to the Finance Committee for 1925 for consideration.

Election of Provisional Committee, 1925. The following nominations were approved: H. H. Truman, E. B. Reynolds, H. C. Reeks, D. S. Jack, S. Bennett, W. A. Wood, R. Turner, H. V. Low, F. T. Trewin, R. C. Baxter, J. W. Beaumont, S. E. Hill, T. G. Heatley, H. P. Standley, C. W. Townsend, T. J. Bosworth, R. E. Glover, T. D. Young, T. F. Spencer, W. Wallis, W. S. Mulvey, H. E. Mason,* A. Miller,* W. R. Davis, R. W. Knowles.*

ELECTION OF STANDING COMMITTEE FOR 1925.

The election of Standing Committees for 1925 (under the new Articles of Association) was then proceeded with. Confirmation of these elections at a subsequent meeting of Council will be required.

The PRESIDENT proposed, Prof. BUXTON seconded, and it was agreed, that the Standing Committees be limited to twelve members.

Under the new articles the quorum for these Committees, except in the case of the Editorial Committee, is one-third of the total membership.

The elections resulted as follows:—

FINANCE COMMITTEE:—Messrs. Bradley, Brittlebank, Buxton, Clarkson, Dawes, Dunkin, Gunning, McIntosh, Roberts, Simpson, J. Willett, Young, and Wooldridge (Treasurer, *ex-officio*).

PARLIAMENTARY COMMITTEE:—Messrs. Buxton, Catmur, Dawes, Dunkin, Hobday, Male, McIntosh, Petrie, Rees, Stockman, J. Willett, and Young. Dr. Bradley to be asked to act in the event of Sir Stewart Stockman's refusal.

*Not members of the Association.

APPOINTMENTS COMMITTEE :—Messrs. Bradley, Brittlebank, Buxton, Dawes, Gaiger, Hobday, McIntosh, Petrie, Rees, Simpson, Stockman, Young. Capt. Kirk to be asked in the event of the refusal of the last-named.

VETERINARY INSPECTORS AND PUBLIC HEALTH :—Messrs. Begg, Buxton, Bryden, Coleman, Hogben, Male, McKinna, Petrie, A. E. Willett, Wooldridge, Wynne, and Young.

EDITORIAL COMMITTEE :—Messrs. Buxton, Dunkin, Kirk, Simpson, J. Willett, and Young, with power to co-opt collaborators.

ORGANISATION COMMITTEE :—Messrs. Bradley, Buxton, Bryden, Carter, Catmur, Dawes, Hobday, Kirk, Male, McIntosh, Rees, and Simpson.

BYE-LAWS AND STANDING ORDERS.

It was agreed that the following be appointed a Committee to draft out bye-laws and standing orders for the conduct of the new Association, to be submitted to the Association's legal adviser and the Parliamentary Committee prior to presentation to the Council for approval. The President (*ex-officio*), Dr. O. C. Bradley, Prof. J. B. Buxton, Prof. C. H. Wooldridge and Lt.-Colonel T. D. Young.

RESOLUTIONS.

From the Central Division :—

1. That there should be created and established in Great Britain, a Veterinary Research Council, adequately to meet the demands of the Veterinary Profession and the community in general for the better elucidation of animal diseases and their consequent proper scientific control.

2. That to provide for such a necessary measure, His Majesty's Government should be approached by the Council of the Royal College of Veterinary Surgeons, the Governing Body of the Profession and supported by the National Veterinary Medical Association and all its branches, as the Veterinary Profession, from its special scientific knowledge of animals and their diseases is in a position to suggest the most suitable organisation and function of a Veterinary Research Council.

3. That such Veterinary Research Council should have similar status and powers to the Medical Research Council, with the difference that it might be arranged to function under to through the Development Commission as long as that Commission existed.

4. That such Veterinary Research Council, if and when established should not only be advisory to Government, but should have certain administrative powers for the purpose of collaboration with other Research Councils or Bodies and for the circulation of information towards the progress and advancement of scientific research in general.

5. That such Veterinary Research Council should consist of men chosen "for their personal qualities as good counsellors and for their special knowledge, and not as representing any particular institution or geographical interests," and that with a strength not exceeding ten members, it should include Veterinary (*f*) and Medical (3) scientists, and agricultural stockowner, and a plant Pathologist (the Veterinary scientists nominated by the Council of the R.C.V.S.). This would provide for the proper liason between professional bodies acting under the Ministries of Agriculture and Health.

6. That this Resolution should be sent through the National Veterinary Medical Association to the Council of the Royal College of Veterinary Surgeons for action, copies being forwarded to all Divisions of the National Veterinary Medical Association for their consideration and support."

It was agreed to send the Resolution to all the divisions with the request that they should consider its proposals and report thereon, and that these reports should receive consideration at a subsequent meeting of Council.

From the Southern Counties Division :—

"That we, the members of the Southern Counties Veterinary Society, consider that steps should be taken to press for a re-introduction of the Tuberculosis Order on lines to be approved by the Profession and with a view to the ultimate building up of tubercle free herds in this country, which could receive a Government certificate."

The SECRETARY was instructed to inform the Southern Counties' Division that the Association had already taken appropriate action in respect of the subject matter of the resolution.

The proceedings terminated with a vote of thanks to the President for his conduct in the Chair.

THE "CRICKET BAT" CASE.

A mysterious "recent Act," says the *Sunday Chronicle*, was mentioned at Croydon on December 19th, when Robert Roberts, of Fortescue Road, Mitcham, was summoned for improperly killing a dog.

Roberts stated that the animal appeared to have gone mad. It rushed about the house frothing at the mouth, and then dashed against a garden fence. A neighbour produced a cricket bat and Roberts tried to end the dog's sufferings, but the first blows, owing to his nervousness, were not effective.

Inspector Dooner, of the R.S.C.P.A., said he did not ask to see the corpse, which had been buried, because it could not be done without an order of exhumation from the Home Secretary.

This was under a recent Act which he could not name.

The chairman said that neither the magistrates nor their clerk knew anything of such an Act. Roberts had been guilty of abominable cruelty, but a mitigated fine of 40s. would be imposed, as the magistrates believed that in his excitement he lost his head.—*Sunday Chronicle, December 21st*, 1924.

(Article 11 of the Rabies Order of 1919 prescribes :—It shall not be lawful for any person, except with the Licence of the Board (now Ministry) or permission in writing of an Inspector of the Board (Ministry) to dig up, or cause to be dug up, the carcase of any animal that has been buried, whether under this Order or otherwise.

For the purposes of the Rabies Order, "Animal" means the animals specified in the Diseases of Animals' Act, 1894 (that is cattle, sheep, and goats, and all other ruminating animals and swine), and horses, asses, mules, dogs and cats.—ED.).

CLINICAL AND CASE REPORTS.

Prolapsed Rectum in a Pig.

By H. Llewellyn-Jones, M.R.C.V.S., Denbigh.

Subject.—Four-months-old, Middle White store pig.

The owner came in and said the bowels had been out for several days and were covered with sores, also that they had been "put back" several times, but continued to come out.

I informed him that the only thing to do was to amputate the protruding part, to which he replied that the d—— pig only cost 39s. He, however, offered the following terms—no cure, no pay—but he was sportsman enough to offer double fee for a quick and complete recovery.

The operation was performed under local anæsthesia. Having firmly secured the pig to a table in the manner in which one does a dog for chloroforming purposes, the parts were washed and instruments and silk suturing material boiled. An ordinary candle, of the larger size, was pushed into the rectum and held there by an assistant, who also pulled out the prolapsed piece as far as he could, by means of two tape sutures passed through the end of the protruded bowel. About twelve interrupted sutures were placed in the form of a ring right round the bowel, each one overlapping the other a little. The prolapsed and ulcerated portion was then cut off with a sharp scalpel, whilst the candle still remained *in situ*. The latter was then withdrawn and the "stump" smeared with iodine ointment (lysodine) and pushed in. The internal traction was sufficient to keep it from coming out again. The local anæsthetic (two grains cocaine hydrochloride in 10 c.c. distilled water) answered the purpose admirably. The after treatment consisting of the giving of a little liquid paraffin mixed in a little nutritious laxative diet night and morning and a rectal injection of same, half an ounce, also twice daily. A month elapsed before I saw him, but many messages had been sent in the meantime, saying the patient was making very satisfactory progress. The pig is now being fattened with his partners and is putting on weight rapidly.

What would a medical man's fee be for a similar operation? Probably 50 guineas, and another 30 would have to be paid for a month at a nursing home, whilst the poor veterinary practitioner receives perhaps a paltry guinea, and as for the poor pig he certainly does not have a trained nurse to lubricate his sphincter ani night and morning. Here again we have to trust to nature and a farm hand, whose love for pigs is not like that of the young man's in spring.

Foot-and-mouth disease continues to spread in South Sweden, and cattle representing a value of about 4,000,000 kroner have been killed so far as a precautionary measure.

Scirrhous Cords in Pigs, and other Cases.

By R. Painé, F.R.C.V.S.,
Veterinary Institute, Grahamstown, S. Africa.

In response to Mr. Armfield's request (your issue of 1st November, 1924), I beg to record a similar condition noted in pigs on a farm in East Griqualand, S. Africa, and its persistence for some years. The following cases are of interest:—

(a) Two merino sheep sent in for *post-mortem* examination from a farm where the sheep were not thriving; in both cases a peculiar lesion was present in the duodenum. Subsequent examination at Omdersterpoort laboratory showed them to be cystic adenoma. It was especially strange that both sheep had the same lesion; local investigation failed to reveal any possible cause.

(b) A portion of small bowel removed from a merino sheep was brought in for examination. It was thickened and white in appearance, as though due to an accumulation of chyle, whilst a small growth projected into the lumen of the bowel. The growth proved to be a carcinoma.

(c) Cattle were dying on a local farm from what was at first thought to be foul play, quantities of pure blood being discharged *per rectum*.

Examination of bowel scrapings revealed oocysts of coccidia, extraction being made by Sheather's method of centrifugalisation and sugar solution.

(d) A flock of merino sheep moved down from up country started to die, the only symptoms being dulness and sometimes hæmoglobinuria; all microscopic examinations were negative.

Upon *post-mortem* examination there were pigmentation and degeneration of the liver, nephritis, pigmentation of the kidneys (yellowish, or a peculiar purplish yellow), in one case the two kidneys weighed 10 oz.; about a foot of the cæcum was usually impacted with hard fæcal material.

Sheep had previously been grazed without any undue mortality on the same veldt, another flock removed from the same area about the same time remained healthy, and no such condition was noted in the area from which they came. Change of veldt did not seem to check the mortality. About fifty-three sheep died out of 600 odd; of course a vegetable poison was suspected, but nothing could be located.

The only time a similar condition has been recorded occurred in a movement of sheep from the Cape Province to the Transvaal.

Anthrax treated with Neosalvarsan.

In the September 20th, 1924, number of *Venereal Disease Information*, issued by the United States Public Health Bureau, is the following:—

"Anthrax treatment with intravenous injections of neosalvarsan. O. Gasser. *Wien. Klin. Wchnschr.*, Vienna, 1924, xxxvii., 261.

(Continued at foot of first column next page.)

DIVISIONAL REPORT.

WESTERN COUNTIES.

(*concluded*).

DISCUSSION ON MR. ROBERTS' PAPER.

Mr. J. DUNSTAN: I have treated milk fever for many years, but never remember having had so much trouble with it as I have had this season. I have had more animals die from milk fever this year than for many years, although my treatment has been the same. We never see milk fever nowadays presenting those symptoms so familiar years ago, when the cows used to throw themselves about so. With regard to the last case Mr. Roberts mentioned, I had one exactly similar. I tried various medicinal remedies with no result. The farmer lost patience, but I did not, and I advised him to turn the animal out in a remote corner of his farm, and let it remain there a while. I happened to see it again last week, and it was perfectly recovered.

Mr. W. B. NELDER: I thank Mr. Roberts for his interesting and practical paper. With some of his treatment I do not quite agree. In cases of gastritis in cows I do not believe in giving them purgatives. If you get cases and give them linseed oil and salts it increases gastric inflammation and they all die. I prefer to give some sedative (belladonna), milk and eggs. I quite agree with the remarks made about milk fever. I had one of my own cows down seven days, and injected her several times before she got up, but she eventually recovered. I do not think any one knows what is the cause of milk fever. Some people say that, as a preventative, the cow should not be milked out too quickly, others say that if not milked out they get bad udders. This year has been a bad year for milk fever: in fact, the old treatment seems to have lost its power.

Mr. E. W. BOVETT: Some cases recover easily within a few hours, while others hang about a long time. We have had more milk fever cases within the last twelve months than I have known since I have been in practice.

Mr. R. E. L. PENHALE: I have not treated my cases, or considered them, as pure and simple cases of milk fever. I have felt cases I have had to be more those of cerebral meningitis. In most cases the cows seem to be very heavy, and lie about. I have told my clients they are not simple cases of milk fever, but cases in which there is congestion of the brain and of the spinal cord. Some have died, and one or two, with persistent treatment, have recovered.

Mr. W. ASCOTT: I had a run of cases similar to those described in the paper, and in treating them I found myself wishing for the old horse days with nothing to do with cow doctoring. There must be some common cause for this trouble, and if we could only give a right name to it that would be an advantage. I have not attempted to give large doses of purgatives, but of those I have tackled with sedative treatment some have died and others have recovered. With regard to milk fever, there seems to be something running concurrently. Like other speakers I have had a tremendous lot of it to deal with all through the year. Whether I have been right or wrong with regard to treatment, I have stuck to chloral hydrate all through, giving doses every three or four hours. In those cows which have done very well, but had a relapse, I have attributed the relapse to starting too soon on stimulants. I have had a similar experience to Mr. Roberts in the case of the colt he mentioned, but I left it alone, and the animal recovered.

Mr. E. J. THORBURN, after thanking Mr. Roberts for his useful paper, remarked: With regard to the injection for anti-abortion, during the last four or five years I have done a good deal in cases of that kind. I started with dead bacilli, and found results very indifferent, but with live bacilli I have had, in many cases, splendid results. One farm which used to be badly infected has now been free for four years. In one case we had 100 on one farm, all since calved down, and out of that 100 four aborted.

Mr. C. E. PERRY, as past-president of the division, voiced the pleasure it gave him to meet the members again. Referring to the treatment of milk fever, he said: I use nothing now but sterilised air. I have had a large number of cases, and every case I have lost through milk fever, submitted to *post-mortem* examination, has proved to be metritis, except in one case, which was inflammation of the lungs. Whether the metritis is due to the damp season I cannot say. Twenty years ago we used to reckon the third day for milk fever, but to-day milk fever comes on within twenty-four hours. The disease seems to have changed, in some way or another.

Mr. ROBERTS, replying to the discussion, said: With regard to Mr. Nelder's remarks about gastritis, personally I do not think these were cases of gastritis at all. The animals were looking dull, not comatose. There was no sign of diarrhœa. *Re* abortion, dead bacilli I have not used, because papers I have read on the subject always advise live bacilli. In many cases we have very successful results, but in others you get these things for which you are not looking. I agree that we get very good results from the use of live bacilli. With regard to metritis in milk fever, in most cases I inject the womb, and put in an antiseptic pessary. If I get a temperature I should immediately expect septic poisoning. The pneumonia is produced by the animal lying down. I quite agree there is a great field for research work in nervous degeneration, and I suggest that mixed grazing is the cause of it.

PARASITIC RESEARCH.

Mr. DUNSTAN mentioned that the meeting might like to hear a few words from Mr. Daubney, of the

(*Continued from previous page.*)

"One injection of neosalvarsan generally suffices to cure anthrax. Some rise of temperature is associated with it. The author treated fifty-four cases. Of this number two died of sepsis, one died right after entering the hospital, and one of pneumonia. The others were cured. This treatment is recommended for veterinary surgeons."

Ministry of Agriculture, a great authority on parasitic research in their profession.

Mr. W. B. NELDER asked what treatment Mr. Daubney would recommend for pastures to kill the egg of the parasite that caused parasitic bronchitis, with which they had been troubled to a very serious extent.

Mr. DAUBNEY: The larva of the husk parasite is what you want to destroy. I cannot give you definite field experience, but I can tell you this. In the laboratory the larvæ are quickly destroyed in a weak saline solution. You will get better results from heavy dressings of agricultural salt than anything else. The parasite has a very wide range of temperature, and the larva will go on developing in winter temperature, even in the ice box. You can freeze them and thaw them, their greatest enemy being warmth and dryness. They get into the throat of the animal grazing, and are swallowed. Improvement in the drainage of land has results with regard to the elimination of these parasites, but if you cannot improve the drainage try a dressing of salt. To keep calves in until the dew is off the grass is one means of safeguarding them, because the parasite moves on only wet grass. If you do that you will get only slight infection.

The members and visitors then took tea together, and a successful meeting closed with thanks to the visitors, to Mr. H. K. Roberts for his paper, and to the Chairman for presiding.

T. BARONS NELDER,
Hon. Secretary, pro. tem.

NOTES AND NEWS.

Diary of Events.

Jan. 28th—Meeting of Comparative Section R.S.M., 1 Wimpole Street, W.1.

Jan. 30th—Annual General Meeting and Dinner, Royal Counties Division, at Reading.

We have received the following communication, amongst many others, on Meat Inspection:—

"I am enclosing herewith a cutting from a local paper, which goes to show the trend of the times.

"In my opinion it is about time the 'National' woke up to this very important matter of Meat Inspection under the new Orders and Regulations. Note what Scotland has done herein.

"It should make for the strength of our very small profession if County veterinary officers were appointed, under the Ministry of Health, to carry out the new work which is foreshadowed. It will be useless to propose that it shall be done by part-time men, for well understood reasons."

The cutting reads as follows:—

"Dr. D. A. Hughes, the county medical officer, recommended the Carmarthenshire Public Health Committee (Miss G. J. Trubshaw, Llanelly, presiding) to appoint a whole-time sanitary inspector for the county. He said he was considerably handicapped in his work through lack of an executive officer. A sanitary inspector qualified for meat inspection would bring about that uniformity in meat inspection enjoined by the departmental committee.

"The recommendation was referred to the next meeting, the officials to ascertain in the meantime from the local authorities what steps were being taken to deal with the inspection of meat."

* * * *

"I notice in the *Daily Mail* of to-day's issue, a notification of new and drastic regulations issued by the Ministry of Health to secure the cleaner handling, etc., and more adequate inspection of the slaughter of animals for food. I trust you will give a résumé of these, in next Saturday's *Record*. It will be very interesting to many veterinary surgeons, especially those like myself, practising in a neighbourhood when there is no meat inspector appointed."

[This subject is being dealt with in a subsequent article.]

* * * *

A correspondent writes:—

"A note in your issue of the 10th inst. draws attention to a statement or mis-statement of Col. Nathan Raw made at the 'Central' Dinner, anent cost of Tuberculosis Order.

"One would imagine that he (Col. Raw) meant thousands, and not millions of pounds; but more than once such statements have been in print. These large figures of the proportion or number of tuberculous animals in this country, and the cost of eradicating the disease, are absurd in the extreme. By such remarks (made seemingly at random) the idea gains currency, and must convey to the public generally, that it is not only a formidable but almost impossible task, which is exceedingly misleading.

"There seem to be so many authorities (?) on this subject, that it is astonishing that the bacilli have not come to an untimely end long since.

"The expense to the country need not run to large figures, were the Act or an Order judiciously administered. Might one again ask, where and how do these authorities get their material, for it is beyond one to find out? A few facts would, at least, be interesting.

"Please note the writer has no 'axe to grind,' but might still find the 'Pleasures of Hope' in a very few reliable *data*."

14th January, 1925. A. V. V.

* * * *

We should welcome more Clinical contributions and articles of general professional interest.

ROYAL COLLEGE OF VETERINARY SURGEONS.

Obituary.

SKOULDING, J. B. W., M.R.C.V.S., 77 Greenway, Uxbridge, Middlesex. Graduated London, June 2nd, 1852. Died January 11th, 1925.

SMITH, T. E., M.R.C.V.S., Market Rasen, Lincolnshire. Graduated London, March 21st, 1868. Died January 15th, 1925. Aged 76 years.

HAMILTON, J. B., Kepstorn, Kirkstall, Leeds. Graduated Glasgow, April 17th, 1879. Died 9th January, 1925.

Mr. Hamilton was appointed in 1902 General Manager of the Leeds City Tramways, and several years ago was also appointed Commercial Manager for the Corporation of Leeds, a position he continued to hold until his death.

Erratum.—We regret that the name of Major J. B. W. Skoulding, whose death we announced last week, was wrongly given as Shoulding. We take this opportunity of adding to our note that in addition to the two representatives of the R.C.V.S. who were present at the funeral, there were also present Colonel H. C. Dibben, representing the R.A.V.C., and Mr. W. A. Hancock, M.R.C.V.S., of Uxbridge. The President of the R.C.V.S., Mr. Slocock, was unable to attend as he was fulfilling an engagement to meet the Mid-West and South Wales V.M.A. that afternoon.

HUNTING IN FOOT-AND-MOUTH DISEASE AREA.

Mr. John Watkinson Ramsden, J.P., Master of the Southwold Foxhounds, was summoned at Spilsby Police Court on January 6th, for hunting in a foot-and-mouth disease area.

The Lindsey County Council prosecuted, and it was stated that the defendant hunted four foxes during the first week in November, during which period foot-and-mouth disease restrictions were in force for the whole of the parts of Lindsey.

The defence was that the usual notification of the cessation of hunting was not received from the Ministry of Agriculture. In cross examination, however, defendant admitted that he had seen a poster relating to the restrictions, but even so did not know that hunting must cease.

The Bench imposed a fine of £1, the chairman (Mr. Frederick Acton) remarking that the circumstances were of such a character as to put a master of foxhounds on full enquiry as to whether he was justified in hunting or not. It was, he said, most important in the public interest that the regulations should be strictly observed.

CORRESPONDENCE.

Rupture of the Rectum.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I welcome Mr. John Brown's gentle chiding, which is very mild compared with the severe criticism he and I level at each other at the "National" meetings. It is always interesting to hear of new theories, but that Mr. Brown should deny the possibility of service per rectum surprises me. Why is it impossible? The penis of a Shire horse is no larger than the average surgeon's arm, and the latter enters without much difficulty, and with less force behind it than that exerted by a vigorous sire.

Here is a short record of a case which may throw light on this accident.

Subject.—A Welsh mountain pony mare, 4 years old. She had been turned out on the moor for some weeks in the summer, as the owner had no work for her. A quarryman crossing the moor found her down and unable to rise.

When I reached her, there was evidence of a good deal of struggling. She was lying on her left side. Having been turned over to the right side, she got up with a little help. The near hind shoe had been partially wrenched off at the outer heel and quarter. She showed considerable distress, and could stand only with some difficulty. She presented a classical picture of crural paralysis.

When I proceeded to take her temperature I was surprised to find that a tuft of the caudal hair had entered the rectum for several inches.

The pony was alone on this particular part of the moor, but on enquiry I was told that there was a herd of ponies with one or two entires on the next section, separated by a plain wire fence. I went to examine this fence and found evidence of a struggle on either side. The lower strand of wire was broken—the break being evidently recent. The upper strand was strained and slackened, and bore some tufts of soft hair.

I endeavoured to reconstruct the tragedy, and came to what I thought was a sane conclusion. The mare and one of the entires met across the wire fence. An attempt at copulation was made over the fence, and the stallion came to grief, as evidenced by the hair on the upper wire. The penis entered the rectum and carried with it part of the tail. The heel of the mare's hind shoe caught in the lower strand of wire, breaking it, and causing the lesions to which I have referred.

If rectal service is impossible, how is the entrance of the tuft of hair through the anus explained?—Yours faithfully,

L. W. WYNN LLOYD.

Carnarvon,

13*th January*, 1925.

The Etiology of Milk Fever.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I am very much indebted to Mr. Pugh for his kind reply to my letter *re* his article on the etiology of milk fever, and I should be extremely sorry to read into it any meaning not intended by him. I shall be glad, therefore, if you can give me the space to explain why I asked the question to which he was good enough to reply.

It was clear in the article that he considered treatment acted by reducing the strain on an overworked liver, but it was by no means as clear that he considered the demand was stopped by a means other than the inhibition of the flow of milk.

In Section 7, after pointing out that the udder fills according to the needs of the calf, he said: "It is also known that distension of the udder inhibits the flow of milk," and "What is true in other circumstances is probably true also in this matter of milk fever."

In Section 6 the following appeared: "In both cases there is (in the absence of milk fever) a relatively scanty flow of milk." This appeared to indicate that in milk fever there is the reverse of a scanty flow of milk, and it was followed by "It is possible that the turgid udder of a difficult labour inhibits the flow of milk, thus lessens the demand on the liver, and so diminishes the chance of milk fever supervening." I trust I have made it clear why it occurred to me that inhibition of the flow of milk was not considered incidental, but actually the means by which the lessened demand was produced.

If a further point may be raised, it does appear to be a fact that milk fever is not associated often with difficult labour, but a turgid udder is by no means always present in these cases, and it must be remembered that the number of cows which suffer in this way is small as compared with those which calve easily.—Yours faithfully, S. J. MOTTON.

Penzance,

7*th January*, 1925.

Questions of Taste.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I think Mr. E. Whitley Baker has misunderstood the purport of my letter. I thought I had purposely excluded country practitioners acting at agricultural or horse shows in their districts, and also provincial practitioners acting at a local dog show. What I had to say

was about those practitioners who made a common practice of giving their services for nothing just to obtain, in my opinion, a good advertisement for further patronage or to keep themselves before the "doggy" public.

Free services to dog shows, which are run for profit and the exhibits at which are worth so much money, even extending to three and sometimes four figures, are quite different in purpose from those given by medical men to poor people, whose lives or health cannot be estimated in £ s. d. and cannot be treated as if they were of commercial value, like live stock that can be converted into cash, even when it is not a source of profit.

The object of the medical profession is mostly opposite to that of the veterinary profession, which is primarily a commercial one. Great numbers of unprofessional, even if expert, officials acting at shows are paid for their services, and why should members of the profession give their services for nothing?

There are many struggling young practitioners who would like to act at dog shows if they were paid a fee commensurate with the value of their services rendered to dog owners in general. If their services were of no value why do show committees employ veterinary surgeons to examine the exhibits before they enter the show ground?

It is not charity to give something for nothing to those who can afford to pay and to profit by it. If the medical profession gives free services to poor people it generally makes the rich pay for theirs as compensation. Rich people contribute largely to hospitals, sanatoria and medical research. But how many rich dog owners are there who have ever contributed one farthing for the treatment or keep of poor peoples' animals at veterinary college infirmaries or to further veterinary research at such institutions? Dogs are not necessities, except as watch-dogs, sheep dogs and blind men's dogs; they are luxuries which can very well be done without, and owners with great sentiment and rich pockets should not expect veterinary surgeons to give their services for nothing, especially in the case of exhibition animals, which are kept as a source of profit. Many exhibitors send kennelmen or kennelmaids, or travel themselves, long and expensive journeys to and from shows. In the majority of instances the cost of one of these would more than pay a decent fee to a young veterinary practitioner, who should be given a look in, now and again.

But how many struggling young practitioners are there who would be given the chance of acting at a big show, even if they were minded to act without reward more than the advertisement might give them? Is it not generally the case that well-established or prosperous practitioners get these appointments, who must find how beneficial it is to themselves to give their services free? At the big horse agricultural shows the same veterinary surgeon rarely acts more than one season; the changes are constant, so as to give a greater number the honour of acting. This should be done at dog shows. It would at least break down rings or prevent the same practitioners being employed constantly or, so to speak, "keeping it in the family."

In conclusion, I would like to ask Mr. Baker, who has blandly taken me to task over my remarks on "questions of taste," if he thinks it is good taste, or even good professional conduct, for any practitioner to act in conjunction with another and his unqualified assistant at dog shows?—Yours faithfully, HENRY GRAY.

January 14th, 1925.

The Veterinary Surgeon in Fiction.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—Allowance must be made for the novelist's imagination in Miss Beatrice Chase's tale of the Dartmoor Vet. Absolute veracity may produce some Trollopeian interest, but it is apt to be commonplace and *bourgeois*. It is the people who are not respectable, or those who have the romantic air, that create the news of the world and furnish characters for novelists. A tale of a perfectly educated, model, modern veterinary surgeon might be very uninteresting. There is frequently more attention drawn to a black sheep than to a white one, and with the novelist now-a-days the black sheep has not to be too plainly indicated.

"There was an old man of Khartoum,
Who kept two black sheep in a room
'They remind me,' he said,
Of two friends that are dead.'
But he never would tell us of whom."

I am not sufficiently acquainted with the Devonshire dialect to discern whether Miss Chase uses it correctly in her narrative or not, but she is true to life when she pictures a veterinary surgeon who can speak to his county men and women in the county dialect. I believe that Lancashire and Somerset veterinary surgeons will bear me out in this statement. Because a veterinary surgeon frequently speaks in the vernacular, it does not follow that he cannot discuss intelligently the binomial theorem or any other abstruse problem.—Yours faithfully, G. MAYALL.

Bolton.

Castration of Pigs.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I thank Mr. Roberts most heartily for the compliments he has paid me in the first part of his letter in this week's *Record*. I note he recommends the covered operation for hernia in the boars. I would like to know if he would do the covered operation in the case of a "double rupture." My experience is that the method I adopt is most successful and very simple, and in many cases the hernia disappears; seldom does a pig die. I would ask Mr. Roberts to read the details more thoroughly in this condition, although I may have been vague in my description.

In reference to "old boars," I would prefer to castrate an old stallion or old bull dog, etc. than an old boar; and whether the owner "pegs out" or not, I risk it, and get my guinea, or let someone else do it for a smaller fee.—Yours faithfully, W. WALLACE KERR.

Saffron Walden.

17*th January*, 1925.

Foot-and-Mouth Disease.

TL THE EDITOR OF THE VETERINARY RECORD.

Sir,—The ease with which the virus can be carried about by a moving object is well-known. The disease used to be controllable in Britain, but seems uncontrollable now. What new condition has arisen that can account for this? The answer would seem to be "vastly increased road traffic" or, in other words, the number and speed of motor cars now using our roads. This is only an idea; if there is anything in it, the foot-and-mouth outbreaks in civilised continental countries should be more numerous than in the past, for the same reason, viz.: the development of motor traffic. I have no means here of finding out whether there has been any gradual increase in foot-and-mouth disease on the Continent. Can your readers inform me whether there has been?—Yours truly, A. S. LEESE.

Stamford.

17*th January*, 1925.

The Editor acknowledges the receipt of the following:—

Report of North Midland Division Meeting at Sheffield, from Mr. J. S. Lloyd, Hon. Secretary.

Reports of meetings of the V.M.A. of Ireland, from Professor J. J. O'Connor, Hon. Secretary.

National Veterinary Medical Association of Great Britain and Ireland, Limited.

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